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Initial Orbit of New Satellite Differed From Usual

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WASHINGTON, April 25 — A secret Air Force satellite that is widely believed to be an intelligence-gathering device was placed in a radically different orbit from many spy satellites.

According to figures made public today by the Air Force, in response to a request, the satellite was placed in a highly elliptical orbit at a low angle above the Equator. The majority of American spy satellites have been launched into roughly circular orbits that pass across polar regions, so that they spend as much time as possible over the Soviet Union. The Air Force satellite, by contrast, would pass over lower latitudes assuming that it stayed in its initial orbit.

When the satellite was carried aloft on the space shuttle Discovery Jan. 24, the Pentagon refused to comment on any aspect of the mission, other than to verify that a booster rocket had functioned without problem.

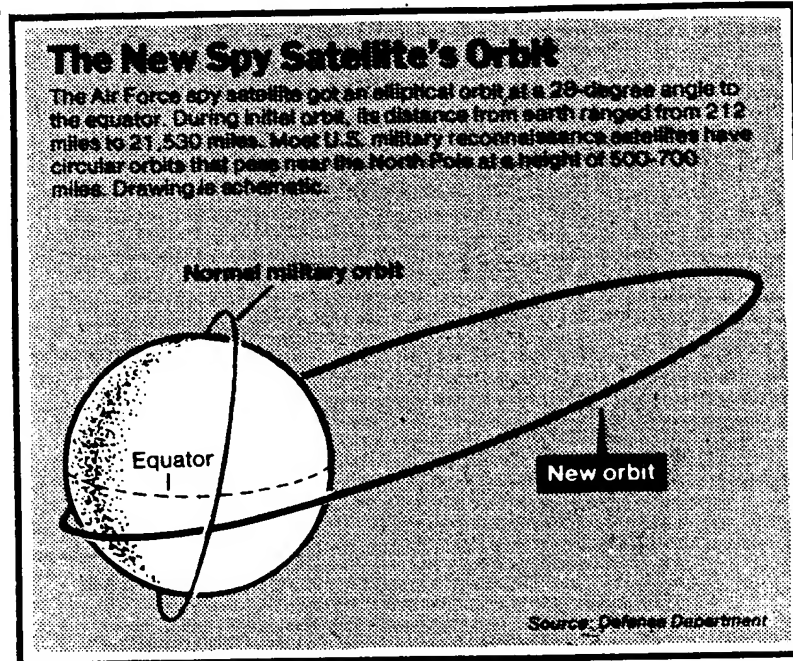
An Intense Debate About It

For more than a month before the launching, Defense Department officials engaged in an often rancorous debate with the news media, which published reports that the satellite was designed to eavesdrop on communications. Most of the information in the media reports was available from open sources such as Congressional testimony and technical journals.

By international treaty, the Pentagon is required to release to the United Nations a technical description of all its satellites' initial orbits. This recording process, which passes through the State Department and includes filing

the information with the Library of Congress, often takes months after an object is launched into space.

An Air Force spokesman said today that the Pentagon released the data to the State Department earlier this



month. The New York Times then requested and received the information.

The satellite, whose United Nations designation is 1985-10B, had after launching a highest altitude of 34,670 kilometers, or 21,543 miles. Its low point then was 341 kilometers, or 212 miles. This elliptical path was inclined 28.4 degrees to the Equator. The satellite took 612.3 minutes, about 10 hours, to complete one revolution.

"It's a very funny trajectory," said Kosta Tsipis, co-director of the Program in Science and Technology for International Security at the Massachusetts Institute of Technology. Mr. Tsipis said the orbit was sometimes used for telecommunications satellites. Japan, for example, has placed several such relay stations on similar paths.

"I'm nonplussed," said Victor H. Reis, a space policy expert who served in President Reagan's science advisory bureau until 1983. Mr. Reis noted that the Russians had used highly elliptical orbits for some of their early-warning and military communication devices.

One possibility is that the satellite was transferred from its initial orbit into another, perhaps more usual, path.

But Richard L. Garwin, a longtime consultant to the Government on military technology who is currently a fellow at I.B.M.'s Thomas J. Watson Research Center, maintained that it was not unusual to place Air Force satellites along this path. He declined to elaborate.